

REMARKS:

This paper is herewith filed in response to the Examiner's Office Action mailed on January 17, 2007 for the above-captioned U.S. Patent Application. This office action is a rejection of claims 1-22 of the application.

More specifically, the Examiner has rejected claims 4, 6-8, 14-15, and 20-21 under 35 USC 112, second paragraph; and rejected claims 1-22 under 35 USC 102(e) as anticipated by Stopler (20030043925). The Applicant respectfully addresses the rejections.

Claims 4, 6-7, 14-15, and 20-21 have been amended to address the rejection under 35 USC 112, second paragraph. The rejection of these claims is seen as overcome and the rejection should be removed.

It should be noted that the Applicant believes the recitation of the phrase "the time domain" in certain of the claims is clear and not ambiguous. However, the phrase has been changed to "a time domain" to comply with the Examiner's request.

Claims 1, 11, and 17 have been amended to further clarify the claimed subject matter. Support for the amendments can be found at least on page 11, line 31 to page 12, line 24; and Figures 6A and 7A. Claims 23-28 are new. Support for the new claims can be found at least on page 11, lines 31-33, and page 12, lines 4-24. Without prejudice or disclaimer claim 9 is canceled. No new matter is added.

In the Office Action the Examiner states:

"As per claims 1 and 17, Stopler et al teaches a method for receiving a multi-carrier signal, comprising the steps of: detecting a presence of at least one impulse interference within the signal, identifying one or more samples of said signal where a significant amount of the impulse noise caused by the at least one impulse interference is present (see figs. 1-2 elements 12,14 and page 2, paragraph [0016] and page 3 [0029]-[0030]); selecting samples to be blanked (see

fig.1 element 16 and page 3 [0031]); blanking the selected samples to obtain a signal with blanking (see fig.1 element 18 and page 3 [0032] and page 6 [0074-0077]); and determining an estimate of the signal with blanking (see figs. 1-2 elements 20 100 and page 3 [0032]); wherein the selected samples comprise the samples identified to have impulse interference present and at least one of the following: a first predetermined number of samples preceding the identified samples (see figs.1- element 68); and a second predetermined number of samples following the identified samples (see fig.1 element 72 and page 7 [0077] – [0078]).”

Stopler discloses

“impulse correction module 18 corrects for the detected impulse noise by, e.g., subtracting an estimated impulse waveform from the data signal at the appropriate time or by blanking (zeroing) the data signal for the duration of the impulse,” (par. [0032]).

Thus, in Stopler each of the samples affected by an impulse is cancelled or blanked.

Further, the Applicant notes that independent claim 1 has been amended to recite that the blanking window is non-rectangular so as to provide smooth transitions at its ends. The use of a non-rectangular window is disclosed in the description on at least page 11, line 31 to page 12, line 24. Further, the smooth transitions are clearly illustrated in the example windows 600, 601, 700, and 701 of Figures 6A and 7A, which show linear and cosine transitions and are described on page 11, lines 31 to 33, and page 12, lines 4 to 7 and lines 21 to 24. In addition, as noted on page 11, lines 31 to 33 of the description, the use of a non-rectangular blanking window with smooth transitions at its ends reduces distortion in the resulting blanked signal.

Claim 1 as amended recites:

A method for receiving a multi-carrier signal, comprising the steps of: detecting a presence of at least one impulse interference within the signal, identifying one or more samples of said signal where a significant amount of the impulse noise caused by the at least one impulse interference is present, selecting samples to be blanked, blanking the selected samples to obtain a signal with blanking by applying a blanking window to said signal, wherein the blanking window is a non-rectangular window to provide smooth transitions at its ends, and

determining an estimate of the signal with blanking; wherein the selected samples comprise the samples identified to have impulse interference present and at least one of the following: a first predetermined number of samples preceding the identified samples; and a second predetermined number of samples following the identified samples.

The Applicant contends that Stopler appears to define cancellation as the subtraction of an estimated impulse from the received signal and blanking as the setting of all samples for the duration of the impulse to zero. The Applicant contends that Stopler does not disclose the use of a non-rectangular blanking window, to provide smooth transitions at the ends thereof. Thus, Stopler does not disclose or suggest claim 1.

In the Office Action for the rejection of claim 9 the Examiner states "As per claim 9, Stopler et al teaches, wherein the blanking window is non-rectangular (see fig.3)." The Applicant respectfully disagrees with the Examiner.

Stopler discloses:

"The whitener filter 30 and whitener match filter 32 are preferably implemented as frequency-domain multiplications, although time convolution can be used instead. For frequency-domain, a filter bank is used that analyzes the input to the whitener 30, and then applies a per-band gain for the whitener, then a per-band gain for the match filter 32, and finally, combines all bands into one wider signal, e.g., by using a filter bank. The per-band whitener gain and the per-band whitener match filter gain can be combined into one gain (i.e., multiplied) to reduce complexity. Efficient implementation of a filter using filter banks is well-known to those skilled in the art," (par. [0058]); and

"Following the whitener and whitener match filters 30, 32, the processed signal is fed to the Gram Schmidt Impulse TOA estimator 34, shown in detail in FIG. 3. First, the processed signal is fed to a FIFO 40 having a length L equal to the estimated length of the impulse. Each time a new sample enters FIFO 40, the oldest sample is discarded. The output of FIFO 40 is a parallel column vector of height L," (emphasis added), (par. [0059]).

In Stopler "FIG. 3 is a block diagram of a Gram Schmidt-based impulse detector," (par. [0026]).

The illustration depicted on the bottom left of Figure 3, relates to $X_{mit} + \text{noise}$, that is, the data signal plus noise. However, in this illustration the x-axis relates to frequency rather than samples or time. The variations in the signal with frequency arise due to the absence of data signals at certain frequencies ("quiet tones") as discussed in paragraph [0053] of Stopler. Meanwhile, a second graph illustrated at the top left of Figure 3 depicts the impulse response of the whitening filter 30, which equalizes the noise. However, once more, the x-axis relates to frequency, rather than samples or time. Given the description of the whitener filter 30 and whitener match filter 32 in paragraph [0058] recited above, and the description of the estimation of the impulse in the resulting signal in paragraph [0059] recited above, it is clear that the impulse signal is estimated by the Gram Schmidt estimator 34 after the whitening has been performed. Thus, the Applicant contends that neither of the graphs shown in Figure 3 depicts blanking windows.

Moreover, in Stopler all samples exceeding a predetermined threshold and samples immediately preceding or following these are set to zero. The Applicant contends that Stopler neither suggests nor envisages the use of shaping, or weighting.

The Applicant contends that for at least the reasons stated, Stopler is not seen to disclose or suggest claim 1, and claim 1 should be allowed.

In addition, for at least the reason that the independent claims 11 and 17 recite language similar to that of claim 1 as noted above, Stopler does not anticipate these claims, and all the independent claims 1, 11 and 17 should be allowed.

Furthermore, as the claims 2-8, 10 and 23-24; claims 12-15; and claims 18-22 and 27-28 depend from claims 1, 11, and 17 respectively, Stopler does not anticipate these claims, and all the claims 1-8, and 10-28 should be allowed.

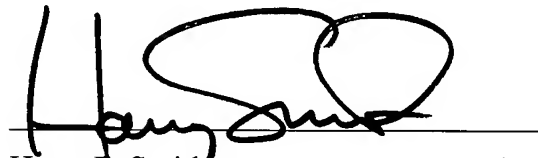
Based on the above explanations and arguments, it is clear that Stopler cannot be seen to anticipate claims 1-8, and 10-28. The Examiner is respectfully requested to reconsider and remove the rejections of claims 1-8, and 10-28 under 35 U.S.C. §102(e) and to allow all of the

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pending claims 1-8, and 10-28 as now presented for examination.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record. Should any unresolved issue remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

Respectfully submitted:


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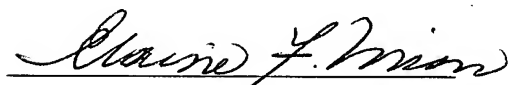
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